

EXAMINING THE POTENTIAL ROLE OF ISOXADIFEN-ETHYL AS A SAFENER FOR VARIOUS POSTEMERGENCE CORN HERBICIDES. Jeffrey A. Bunting, Dean E. Riechers, and Bill Striegel. Seed Agronomist, GROWMARK, Bloomington, IL 61702, Assistant Professor, Department of Crop Sciences, University of Illinois, Urbana, IL 61801, and Field Development Representative, Bayer Crop Science, Normal, IL 61761.

Two field studies were conducted at Bloomington, DeKalb and Urbana, IL in 2004 to 1) evaluate crop response when isoxadifen-ethyl is used with other postemergence corn herbicides and 2) determine the effects of foramsulfuron with and without a safener when tank-mixed with an organophosphate insecticide. The herbicide treatments included foramsulfuron plus isoxadifen-ethyl tank-mixed with rimsulfuron, dicamba plus diflufenzopyr, mesotrione, dicamba, or nicosulfuron plus rimsulfuron. Additional treatments included only isoxadifen-ethyl tank-mixed with rimsulfuron, dicamba plus diflufenzopyr, mesotrione, dicamba, or nicosulfuron plus rimsulfuron. Since the use of a methylated seed oil (MSO) is not recommended with these herbicides due to the potential for corn injury, our objective was to determine if isoxadifen-ethyl would safen corn from injury caused by these herbicides when used with a MSO. Two corn hybrids with different levels of tolerance were chosen for the first study to obtain maximum corn injury and plots were kept weed-free to eliminate any competition from weeds. All herbicide applications were made when corn plants were at the V6 growth stage. All herbicides were applied at the 1X labeled field use rates. Among the herbicides tested, only dicamba and dicamba plus diflufenzopyr resulted in less crop injury when tank-mixed with isoxadifen-ethyl, compared with the same herbicide without isoxadifen-ethyl with both hybrids (Pioneer P33K81 and P33P66) 7 days after treatment. The addition of isoxadifen-ethyl resulted in less crop injury when tank-mixed with rimsulfuron with only the P33K81 hybrid. There was no significant difference in adding isoxadifen-ethyl with mesotrione or nicosulfuron plus rimsulfuron. The addition of isoxadifen-ethyl partially protected corn from the response of mesotrione, nicosulfuron plus rimsulfuron, dicamba, dicamba plus diflufenzopyr, and rimsulfuron when treatments included an organophosphate insecticide, chlorpyrifos. Most postemergence corn herbicides recommend applying an organophosphate insecticide at least 7 days before or 3 days after the herbicide. The use of isoxadifen-ethyl may reduce the level of crop injury when a treatment of an insecticide is needed at the time of the corn herbicide application. With the increase in transgenic corn hybrids with rootworm protection, the use of foliar applications of organophosphate insecticides may increase to control secondary pests. The use of the first foliar-applied corn safener, isoxadifen-ethyl, may give more application flexibility when using these insecticides in combination with postemergence herbicides in corn.